

WHAT IS CLAIMED IS:

1. An equalization apparatus in a single carrier system, the apparatus comprising:

a multi-path prediction unit for predicting multi-path of a received signal;

a section setting unit for setting filter taps having a predetermined section corresponding to the predicted multi-path thereby to produce a set predetermined section;

a repeat setting unit for setting filter taps of a repetition section by making the set predetermined section repetitive periodically thereby to produce a set repetition section; and

a filter unit for filtering the multi-path by updating coefficients of the filter taps of the set repetition section.

2. The equalization apparatus as claimed in claim 1, wherein the repeat setting unit sets the filter taps of the repetition section according to an operation characteristic of the filter unit.

3. The equalization apparatus as claimed in claim 1, further comprising an error calculation section for calculating an equalization error value on a basis of an output signal of the filter unit,

the filter unit updating the coefficients of the filter taps of the set repetition section on a basis of the equalization error value.

4. An equalization apparatus in a single carrier system, the apparatus comprising:

a multi-path prediction unit for predicting multi-path of a received signal;

a section setting unit for setting filter taps having a predetermined section corresponding to the predicted multi-path thereby to produce a set predetermined section;

a repeat setting unit for setting a repetition section by making the set predetermined section repetitive periodically thereby to produce a set repetitive section;

a feed forward (FF) unit for filtering pre-ghosts from among the predicted multi-path; and

a feed back (FB) unit for filtering post-ghosts from among the predicted multi-path.

5. The equalization apparatus as claimed in claim 4, wherein the repeat setting unit sets the repetition section according to an operation characteristic of the FF unit and the FB unit.

6. The equalization apparatus as claimed in claim 4, further comprising an error calculation section for calculating an equalization error value on a basis of an output signal of the FF unit and the FB unit,

the FF unit and the FB unit updating coefficients of the filter taps of the set repetition section on a basis of the equalization error value.

7. The equalization apparatus as claimed in claim 6, wherein the FF unit updates coefficients of the filter taps of the set repetition section set in accordance with the pre-ghosts, and the FB unit updates coefficients of the filter taps of the set repetition section set in accordance with the post-ghosts.

8. The equalization apparatus as claimed in claim 4, wherein the FF unit updates coefficients of the filter taps of the set repetition section set in accordance with the pre-ghosts and post-ghosts, and performs a filtering operation with respect to the pre-ghosts and the post-ghosts.

9. An equalization method in a single carrier system, the method comprising the steps of:

(1) predicting multi-path of a received signal;

(2) setting filter taps having a predetermined section corresponding to

the predicted multi-path thereby to produce a set predetermined section;

(3) setting filter taps of a repetition section by making the set predetermined section repetitive periodically thereby to produce a set repetitive section; and

(4) filtering the multi-path by updating coefficients of the filter taps of the set repetition section.

10. The method as claimed in claim 9, wherein, in step 3, the filter taps of the repetition section are set according to an operation characteristic of the filtering.

11. The method as claimed in claim 9, further comprising a step of calculating an equalization error value on a basis of an output signal of step 4, wherein, in step 4, the coefficients of the filter taps of the set repetition section are updated on a basis of the equalization error value.

12. The method as claimed in claim 9, wherein, step 4 comprises the steps of:

- (a) filtering pre-ghosts from among the predicted multi-path; and
- (b) filtering post-ghosts from among the predicted multi-path.

13. The method as claimed in claim 12, wherein, the coefficients of the filter taps of the set repetition section set in accordance with the pre-ghosts are updated in step a, and the coefficients of the filter taps of the set repetition section set in accordance with the post-ghosts are updated in step b.

14. The method as claimed in claim 9, wherein, in step a, the coefficients of the filter taps of the set repetition section set in accordance with the pre-ghosts and post-ghosts are updated, and a filtering operation is performed with respect to the pre-ghosts and post-ghosts.